REMARKS/ARGUMENTS

The Examiner provisionally rejects all claims under 35 U.S.C. §101 as claiming the same invention as that of claims 1-89 in copending Application No. 10/054,150. For a statutory type double patenting rejection to be proper the present claims must be coextensive in scope with the conflicting claims. Applicants note that application No. 10/054,150 was filed with a preliminary amendment, which through oversight was not entered by the Examiner. The amended claims actually pending in the 10/054,150 application are not in fact coextensive in scope with claims 1-89 in the present application. As such, pending claims 1-89 in the present application overcome the provisional double patenting rejection and are therefore allowable.

The Examiner also rejects all claims either under 35 U.S.C.§102(b) as being anticipated by Wood (U.S. 5,757,523) or under 35 U.S.C.§103(a) as being unpatentable over Wood.

Applicant respectfully traverses the Examiner's rejections. Wood neither teaches nor suggests at least the following italicized features of the independent claims:

> 1. A method for receiving high frequency signals transmitted through free space, comprising:
>
> passing one or more optical signals, the one or more optical signals containing data and being composed of radiation of a plurality of differing wavelengths, through a diffractive optical element to form a plurality of signal segments, each signal segment having a different mean wavelength; and
>
> *detecting data in each of said plurality of signal segments at or near a different spatial focal point.*

> 11. A method for receiving high frequency signals transmitted through free space, comprising:
>
> dividing an optical signal, the optical signal containing data and being composed of radiation of a plurality of differing wavelengths, into a plurality of signal segments, each signal segment having a different mean wavelength; and

detecting, with a plurality of spaced apart detectors, data in each of said plurality of signal segments wherein each of said spaced apart detectors is located substantially at a different focal point, the focal points being at different positions along a common optical axis.

24. An apparatus for receiving an optical signal transmitted through free space, the optical signal being composed of radiation of a plurality of wavelengths, comprising:

at least one diffractive optical element for *focusing* radiation of different wavelengths *at different corresponding focal points* wherein said *focal points are at different positions along the optical axis of said optical element*; and

a plurality of detectors, each detector being located at or near a different one of the focal points and receiving the radiation focused on the focal point corresponding to the detector.

35. An apparatus for receiving an optical signal transmitted through free space, the optical signal containing data, comprising:

a first lens for *focusing radiation*;

a detector positioned to receive the focused radiation; and

a second lens located between the first lens and the detector, the second lens reducing a spot size of the focused radiation after passing through the second lens.

47. A method for receiving high frequency signals transmitted through free space, comprising:

first passing an optical signal, the optical signal containing data, through a first lens to *form focused radiation* having a first mean wavelength;

second passing the focused radiation through a second lens to form converging radiation having a second mean wavelength, the first mean wavelength being different than the second mean wavelength; and

detecting data in the convergent radiation.

57. An apparatus for receiving an optical signal, the optical signal containing data, comprising:

a first lens for *focusing the radiation in the optical signal*;

a *reflective surface for reflecting the focused optical signal and forming a reflected optical signal*; and

a detector positioned to receive the reflected optical signal , the detector being located between the first lens and the reflective surface.

68. A method for receiving an optical signal transmitted through free space, comprising:

first passing the optical signal, the optical signal containing data, through a first lens to form a plurality of signal segments, each corresponding to a different median wavelength, wherein the first lens is a diffractive optical element;

reflecting the plurality of signal segments off a reflective surface to form reflected radiation; and

detecting data in the reflected radiation at or near an optical focal point.

77. A method of manufacturing a detector assembly, comprising:

forming an optical detector on an at least substantially transparent substrate, the optical detector being on a first side of the substrate; and

forming, on an opposed second side of the substrate, a lens, the lens having a refractive index such that a median wavelength of radiation passing through the lens is reduced.

In one embodiment, the present invention is directed to providing methods, devices, or systems for focusing and detecting data from a beam of radiation. In one embodiment, the invention seeks to focus multiple wavelengths of radiation corresponding to multiple channels of data at focal points. The focal points serve as a point where radiation corresponding to a particular wavelength will converge and, therefore, provide a discrete point in space to place the detectors. The convergence of the radiation to a focal point is well displayed and defined in the specifications of the invention and these focal points are used in the methods and devices claimed. Furthermore, the present invention claims a method of manufacturing a detector assembly with a defined optical detector.

<u>Wood</u>

Wood, the sole reference, is directed to a method, device, or system used to illuminate a remote target area by passing radiation, containing multiple wavelengths 10, through a diffractive

hologram 12. The purpose of the hologram 12 is to diffract the radiation such that a divergent pattern exists which can be used to cover a remote target area. Depending on the target area, a hologram 12 is selected to diffract the radiation such that it covers the area with as little radiation as possible being wasted outside the target area. Fitting the radiation to the selected target area increases the efficiency of the system. Wood is focused on illuminating a remote target area with radiation that has been scattered by a hologram 12.

Accordingly, the pending claims are allowable.

The dependent claims provide further reasons for allowance.

<u>Claims 2-10, 12-23, 26-34, 36-46, 48-56, 58-67, 69-76, and 78-89</u>

For example, dependent claims 12-14, 25, 30, 37, and 60 all specify that the locations of the focal points and hence the detectors lie along a common optical axis. This axis is either defined as a common axis to a lens or the configuration of detectors defines an end-to-end configuration relative to an adjacent detector. Both of these configurations are not taught by Wood. Rather, Wood discloses target areas along a common plane facing the source of radiation that are to be illuminated.

Also, dependent claims 9-10, 22-23, 34, 49, 55-56, and 75-76 define a communication system whereby the atmosphere between the radiation source and detector is defined within an inner scale. The claimed detector and communication system is more efficient when the beam size is less than this inner scale. Wood does not consider atmospheric inner scale between the source and detector because it's efficiency is enhanced by not wasting radiation outside of the target area.

Furthermore, dependent claims 8, 20, 27, 54, 58, 64, and 67 claim use of a reflective surface to focus the radiation of a particular wavelength to a focal point corresponding to that wavelength. Wood does not use such a reflective surface because, again, it is concerned with irradiating a target area rather than targeting a focal point.

Dependent claims 7, 19, 21, 26, 32-33, 36-46, 48-56, 61-63, 65-66, and 73-74 define a system with a focusing aperture or an immersion lens. The focusing of radiation of a particular wavelength to a discrete spacial point has already been discussed at great length and the importance of it is well known to the Examiner. Wood does not disclose a system where radiation is focused to a discrete spacial point.

<u>Claims 78-89</u>

Dependent claims 78-89 are directed to a method of manufacturing a detector assembly. Wood does not claim or disclose a method of manufacture for any detector assembly. Wood uses an optical device for emitting a beam of optical radiation to irradiate a remote target area. The method of manufacturing a detector is not mentioned since the target area is predetermined and defines the optical emission device.

Based upon the foregoing, Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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